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EXAMINER	
WOZNIAK, JAMES S	

ART UNIT	PAPER NUMBER
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/939,954	WHITMAN ET AL.	
	Examiner	Art Unit	
	James S. Wozniak	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-26 and 44-66* is/are pending in the application.

4a) Of the above claim(s) *19-26 and 44-48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49,50,52-56,58-62 and 64-66* is/are rejected.

7)☒ Claim(s) *51,57 and 63* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the office action from 1/6/2006, the applicant has submitted an amendment, filed 6/6/2006, adding claims 49-66, while canceling claims 1-18 and 27-43 and arguing to traverse the art rejection based on the subject matter recited in the new claims *(Amendment, Page 8)*. The applicant's arguments have been fully considered but are moot with respect to the new grounds of rejection, necessitated by the newly added claims and in view of Weare et al *(U.S. Patent: 6,657,117)* in view of Dumais et al *(U.S. Patent: 6,192,360)*.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 49, 53-54, 55, 59-60, 61, and 65-66** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weare et al *(U.S. Patent: 6,657,117)* in view of Dumais et al *(U.S. Patent: 6,192,360)*.

With respect to **Claims 49, 55, and 61**, Weare recites:

Processing a perceptual representation of the audio signal into a learning representation of the audio signal *(calculating an audio characteristic vector, Col. 15, Line 66- Col. 16, Line 25)*; and

Inputting the learning representation into a multi-stage classifier *(multi-stage classifier, Fig. 3)*, the multi-stage classifier comprising a first stage of vector machine classifiers and a final stage metalearner classifier, each vector machine classifier trained to identify one out of a plurality of audio classification categories and where the vector machine classifiers are used to generate a metalearner vector *(first stage music classification implemented in a DSP, comprising vector classifier categories each corresponding to a specific music type (for example, "jazzy" type music), which generates classification vectors, Col. 9, Lines 22-48)* that allows the final stage metalearner classifier to classify the audio signal into one out of the plurality of audio classification categories *(machine learning classification that processes the classification vectors, Col. 9, Lines 22-58)*.

Weare further discloses method implementation as a program stored on a computer readable medium *(Col. 26, Lines 23-44)*.

Weare does not mention the use of support vector machine (SVM) classifiers in a first stage, however Dumais recites:

First stage of said multi-stage classifier comprises at least one Support Vector Machine (use of support vector machines in pattern classification, Col. 10, Line 66- Col. 11, Line 15).

Also, Dumais further discloses:

Multi-stage classifier comprises at least one Support Vector Machine per category of classification *(Col. 10, Line 66- Col. 11, Line 15)*.

Weare and Dumais are analogous art because they are from a similar field of endeavor in pattern classification. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Weare with the use of a support vector machine as a first stage of a multi-stage classifier as taught by Dumais to provide more accurate pattern classification through the use of a support vector machine *(Dumais, Col. 4, Lines 51-54)*.

With respect to **Claim 53, 59, and 65,** Weare further discloses:

The learning representation comprises dividing the perceptual representation of the audio signal into a plurality of time slices *(frames, Col. 15, Line 66- Col. 16, Line 25)*.

With respect to **Claim 54, 60, and 66**, Weare further recites:

The learning representation comprises dividing the perceptual representation of the audio signal into a plurality of frequency bands *(Col. 16, Lines 26-37)*.

4. **Claims 50, 56, and 62** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weare et al *(U.S. Patent: 6,657,117)* in view of Dumais et al *(U.S. Patent: 6,192,360)* and further in view of Soltau et al *("Recognition of Music Types," 1998)*.

With respect to **Claims 50, 56, and 62**, Weare in view of Dumais discloses the multi-stage music classification method and system utilizing a support vector machine classification stage and a machine learning classification stage, as applied to claims 49, 55, and 61. Weare in view of Dumais do not teach a machine learning classification stage implemented with a neural network, however Soltau recites the use of such a neural network in a final stage of a multi-stage classifier *(Fig. 1)*.

Weare, Dumais, and Soltau are analogous art because they are from a similar field of endeavor in pattern classification. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Weare in view of Dumais with the use of a neural network as a second stage of a multi-stage classifier as taught by Soltau in order to achieve improved audio structure discrimination *(Soltau, Section 1)*.

5. **Claims 52, 58, and 64** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weare et al *(U.S. Patent: 6,657,117)* in view of Dumais et al *(U.S. Patent: 6,192,360)* and further in view of Logan et al *(U.S. Patent: 6,931,451)*.

With respect to **Claim 52, 58, and 64**, Weare in view of Dumais discloses the multi-stage music classification method and system utilizing a support vector machine classification stage and a machine learning classification stage, as applied to claims 49, 55, and 61. Weare in view of Dumais do not specifically suggest artist classification, however Logan teaches a means for recognizing (classifying) a musical artist *(Col. 13, Lines 16-28)*.

Weare, Dumais, and Logan are analogous art because they are from a similar field of endeavor in pattern classification. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Weare in view of Dumais with the means for classifying a musical artist as taught by Logan in order to implement a musical broadcast filter that stores music data only having select artist attributes *(Logan, Col. 13, Lines 16-28)*.

Allowable Subject Matter

6. **Claims 51, 57, and 63** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

With respect to **Claims 51, 57, and 63**, the prior art of record fails to explicitly teach or fairly suggest a method, program stored on a computer readable medium, or system for music classification implemented using a multiple stage classifier comprising a first stage of support vector machine (SVM) classifiers each associated with a musical category such as a particular artist or genre, wherein input audio signal learning vectors are applied to each SVM classifier to produce a value indicative of how well or poorly the input audio signal vector conforms to a particular classification, and wherein the generated value from each of the classifiers is utilized in creating a metalearning vector, which is utilized at a neural network classifying stage to make a final classification determination.

Although Weare et al mention determining a degree of similarity (distance) to a particular audio classification, such a similarity determination is made at a second classification stage and not at a first classification stage utilizing a SVM *(Col. 10, Line 65- Col. 11, Line 50)*. Therefore, since the distance value determination taught by Weare does not occur in a first classification stage, Weare also fails to disclose the use of such values in creating a metalearning vector to be used in a final neural network classification stage.

Thus, Claims 51, 57, and 63 contain allowable subject matter.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached at (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
7/12/2006

DAVID HUDSPETH
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